

DOCKET NO: 220983US0PCT

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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

RE APPLICATION OF

MANABU SUHARA, ET AL.

: EXAMINER: CANTELMO, G.

SERIAL NO: 10/089,109

:

FILED: MARCH 26, 2002

: GROUP ART UNIT: 1745

FOR: LITHIUM-COBALT COMPOSITE  
OXIDE, PROCESS FOR ITS  
PRODUCTION, POSITIVE ELECTRODE  
FOR LITHIUM SECONDARY CELL  
EMPLOYING IT, AND LITHIUM  
SECONDARY CELL

REPLY BRIEF

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

The following Reply Brief is in reply to the Examiner's Answer dated December 3, 2003 (Answer).

The Answer, in essence, ignores one of the main points raised in the Appeal Brief, i.e., that the comparative data of record shows that the value of "x" affects the half-width of the diffraction peak for (110) face at  $2\theta=66.5\pm1^\circ$  (half-width), that the half-width affects the capacity retention after 40 charge/discharge cycles, and that the process of making the claimed hexagonal lithium-cobalt composite oxide affects these properties, even when "x" is within the terms of the present claims. Nor has the Examiner responded to Appellants' argument regarding *In re Best*, 195 USPQ 430 (CCPA 1977) to the extent that Appellants have demonstrated with the data of record that it is not reasonable to presume that Aoki et al or Toyoguchi meet, or otherwise suggest, the presently-claimed invention. In essence, the

Examiner's whole case is based on the fact (1) that Aoki et al discloses an *empirical* formula for a lithium-cobalt-metal oxide wherein the variable corresponding to the presently-recited "x" broadly encompasses the presently-recited range of  $0 \leq x \leq 0.02$  (Answer at 19) and (2) that Toyoguchi et al discloses **comparative examples** having an *empirical* formula for a lithium-cobalt-metal oxide wherein the variable corresponding to the presently-recited "x" is within the presently-recited range of  $0 \leq x \leq 0.02$ , although the **invention of Toyoguchi et al** has an *empirical* formula for a lithium-cobalt-metal oxide wherein the variable corresponding to the presently-recited "x" is actually outside the presently-recited range (Answer at 25-26).

In making this analysis, the Examiner ignores other limitations in the claims, i.e., such as the recited half-width range, and the point, raised above, that the method of making the recited hexagonal lithium-cobalt composite oxide affects both the half-width and the physical properties of the composite oxide.

The Examiner dismisses the comparative data of record because it is not a side-by-side comparison with Aoki et al (Answer at 20) or Toyoguchi (Answer at 26). In reply, and as pointed out in the Appeal Brief, *Best* confirms that indirect comparisons, based on established scientific principles, can validly be applied to distinguish a claimed chemical product from that disclosed in the prior art. See also, *In re Blondell*, 182 USPQ 294, 298 (CCPA 1974), *In re Fouche*, 169 USPQ 429, 433 (CCPA 1971), and *In re Wilder*, 166 USPQ 545, 549 (CCPA 1970).

In response to Appellants' arguments in the Appeal Brief that Aoki et al does not exemplify any lithium-cobalt composite oxides within the terms of the present claims, the Examiner finds that Aoki et al do, at paragraph [0013] (Answer at 19). While paragraph [0013] does *list* empirical formulae, wherein x is between 0 and 0.02, none of the listed compounds have an empirical formula within the terms of the empirical formula of the

present claims. At any rate, mere listing of a compound is not an example thereof, and indeed, Aoki et al make no distinction between any value of x between 0 and 0.25.

The Examiner improperly relies on Appellants' disclosure at page 4, line 26 through page 6, line 4 as, in effect, disclosing that as long as x is between 0 and 0.02, "the claimed characteristics will be achieved" (Answer at 20 and 26).

In reply, while Appellants may disclose that x within the above range is a necessary condition, it is not a sufficient condition since, as also disclosed therein, the half-width must also be satisfied. This is addressed neither by the Examiner nor by the applied prior art.

With regard to the various rejections of Claim 4 and the application of Yamahira, Appellants maintain that Yamahira's disclosure of volumetric density is specific to Yamahira's sintered compact pellet and has no relevance to the lithium-cobalt composite oxide of Aoki et al, or the cathode active material of Toyoguchi.

Regarding the obviousness-type double patenting rejections discussed as Issues (F), (G) and (H) in the Appeal Brief, it appears that the Examiner has not withdrawn them in view of his discussion in the Answer at 32-33. Nevertheless, the Examiner has not responded to the particular arguments made in the Appeal Brief at pages 11-13. The Examiner finds that the subject matter of the present claims and the product claimed in the co-pending application are identical and that there is a reasonable expectation that the subject matter of the co-pending application will have the same characteristics as recited in the present claims (Answer at 32-33). In reply, it is the Examiner's burden to demonstrate identity and reasonable expectation, in the first instance, not Appellants' burden to demonstrate that the products are not identical and that there is no reasonable expectation. Nevertheless, Appellants have so demonstrated this, in the above-referenced arguments in the Appeal Brief.

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Appellants continue to maintain that all the rejections should be REVERSED.

Respectfully submitted,

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